

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 10/665,149

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented) An ink jet recording apparatus comprising:
a recording head provided with a pressure generating element;
a scanning mechanism for moving the recording head in a main scanning direction;
a data developer for developing print data into multi-bit jetting data;
a drive signal generator for generating a drive signal including a plurality of drive pulses,
on every unit print cycle;

a translator for translating the multi-bit jetting data into pulse select information
associated with the respective drive pulses;
a drive pulse supplier for selectively supplying at least one of the drive pulses to the
pressure generating element in accordance with the pulse select information to drive the pressure
generating element;

a basic recording mode for recording a dot having a size which is selected from one of a
plurality of sizes, in a basic unit pixel which is associated with a unit recording area
corresponding to the unit print cycle;

a high-resolution recording mode for recording a dot in a fine unit pixel, a plurality of
fine unit pixels being arranged within the unit recording area in the main scanning direction; and

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a mode selector for selecting one of plural recording modes including the basic recording mode and the high-resolution recording mode,

wherein the data developer develops the print data into the jetting data so as to indicate the size of the dot to be recorded in the basic unit pixel when the mode selector selects the basic recording mode; and

wherein the data developer develops the print data into the jetting data such that each bit therein indicates whether the recording is conducted or not in each associated fine unit pixel, when the mode selector selects the high-resolution recording mode.

2. (previously presented): The ink jet recording apparatus as set forth in claim 1, wherein the data developer develops the print data into the jetting data such that bits therein indicate the size of the dot to be recorded in the unit recording area, when the mode selector selects the basic recording mode.

3. (original): The ink jet recording apparatus as set forth in claim 1, wherein the translator is provided with waveform select tables associated with the respective recording modes;

wherein each of the waveform select table defines a correspondence between the jetting data and the pulse select information in the associated recording mode; and

wherein the translator translates the jetting data into the pulse select information with reference to the waveform select table of the recording mode selected by the mode selector.

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4. (original): The ink jet recording apparatus as set forth in claim 3, wherein the waveform select table is rewritable.

5. (original): The ink jet recording apparatus as set forth in claim 1, wherein the mode selector selects the recording mode in accordance with the print data.

6. (original): The ink jet recording apparatus as set forth in claim 1, wherein the plural drive pulses are of an identical profile.

7. (original): The ink jet recording apparatus as set forth in claim 1, wherein the plural drive pulses are spaced at constant intervals within the unit print cycle.

8. (original): The ink jet recording apparatus as set forth in claim 1, wherein an initial trigger for starting the unit print cycle is derived from the scanning mechanism.

Claims 9-37. (canceled)

38. (previously presented) An ink jet recording apparatus comprising:
a recording head provided with a pressure generating element;
a scanning mechanism for moving the recording head in a main scanning direction;
a data developer for developing print data into multi-bit jetting data;

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a drive signal generator for generating a drive signal including a plurality of drive pulses, on every unit print cycle;

a translator for translating the multi-bit jetting data into pulse select information associated with the respective drive pulses;

a drive pulse supplier for selectively supplying at least one of the drive pulses to the pressure generating element in accordance with the pulse select information to drive the pressure generating element;

a basic recording mode for recording through use of a basic unit pixel which is associated with a unit recording area corresponding to the unit print cycle;

a high-resolution recording mode for recording through use of a fine unit pixel, a plurality of fine unit pixels being arranged within the unit recording area in the main scanning direction; and

a mode selector for selecting one of plural recording modes including the basic recording mode and the high-resolution recording mode,

wherein the number of gradation levels that can be recorded in the basic recording mode is larger than the number of gradation level can be recorded in the high-resolution recording mode.

39. (canceled).

40. (previously presented): A computer-readable product for storing a program to control an ink jet recording apparatus comprising:

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a recording head provided with a pressure generating element;

a scanning mechanism for moving the recording head in a main scanning direction;

a basic recording mode for recording through use of a basic unit pixel which is associated with a unit recording area corresponding to a unit print cycle; and

a high-resolution recording mode for recording through use of a fine unit pixel, a plurality of fine unit pixels being arranged within the unit recording area in the main scanning direction,

the program executing the steps of:

receiving print data;

selecting one of plural recording modes including the basic recording mode and the high-resolution recording mode in accordance with the print data;

developing print data into multi-bit jetting data;

generating a drive signal including a plurality of drive pulses, on every unit print cycle;

translating the multi-bit jetting data into pulse select information associated with the respective drive pulses;

supplying selectively at least one of the drive pulses to the pressure generating element in accordance with the pulse select information to drive the pressure generating element,

wherein the print data is developed into the multi-bit jetting data such that each bit therein indicates whether the recording is conducted or not in each associated fine unit pixel, when the high-resolution mode is selected.

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41. (currently amended): An ink jet recording apparatus ~~as set forth in claim 1,~~
comprising:

a recording head provided with a pressure generating element;

a scanning mechanism for moving the recording head in a main scanning direction;

a data developer for developing print data into multi-bit jetting data;

a drive signal generator for generating a drive signal including a plurality of drive pulses,
on every unit print cycle;

a translator for translating the multi-bit jetting data into pulse select information
associated with the respective drive pulses;

a drive pulse supplier for selectively supplying at least one of the drive pulses to the
pressure generating element in accordance with the pulse select information to drive the pressure
generating element;

a basic recording mode for recording a dot having a size which is selected from one of a
plurality of sizes, in a basic unit pixel which is associated with a unit recording area
corresponding to the unit print cycle;

a high-resolution recording mode for recording a dot in a fine unit pixel, a plurality of
fine unit pixels being arranged within the unit recording area in the main scanning direction; and
a mode selector for selecting one of plural recording modes including the basic recording
mode and the high-resolution recording mode,

wherein the data developer develops the print data into the jetting data so as to indicate
the size of the dot to be recorded in the basic unit pixel when the mode selector selects the basic
recording mode;

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wherein the data developer develops the print data into the jetting data such that each bit therein indicates whether the recording is conducted or not in each associated fine unit pixel, when the mode selector selects the high-resolution recording mode; and

wherein both of the recording on the basic unit pixel and the recording on the fine unit pixel are performed by a single movement of the recording head in the main scanning direction.

42. (new): An ink jet recording apparatus comprising:

a recording head provided with a pressure generating element;

a scanning mechanism for moving the recording head in a main scanning direction;

a data developer for developing print data into multi-bit jetting data;

a drive signal generator for generating a drive signal including a plurality of drive pulses, on every unit print cycle;

a translator for translating the multi-bit jetting data into pulse select information associated with the respective drive pulses;

a drive pulse supplier for selectively supplying at least one of the drive pulses to the pressure generating element in accordance with the pulse select information to drive the pressure generating element;

a basic recording mode for recording through use of a basic unit pixel which is associated with a unit recording area corresponding to the unit print cycle;

a high-resolution recording mode for recording through use of a fine unit pixel, a plurality of fine unit pixels being arranged within the unit recording area in the main scanning direction; and

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a mode selector for selecting one of plural recording modes including the basic recording mode and the high-resolution recording mode,

wherein the number of gradation levels that can be recorded in the basic recording mode is larger than the number of gradation level can be recorded in the high-resolution recording mode; and

wherein both of the recording on the basic unit pixel and the recording on the fine unit pixel are performed by a single movement of the recording head in the main scanning direction.

43. (new): A computer-readable product for storing a program to control an ink jet recording apparatus comprising:

a recording head provided with a pressure generating element;

a scanning mechanism for moving the recording head in a main scanning direction;

a basic recording mode for recording through use of a basic unit pixel which is associated with a unit recording area corresponding to a unit print cycle; and

a high-resolution recording mode for recording through use of a fine unit pixel, a plurality of fine unit pixels being arranged within the unit recording area in the main scanning direction,

the program executing the steps of:

receiving print data;

selecting one of plural recording modes including the basic recording mode and the high-resolution recording mode in accordance with the print data;

developing print data into multi-bit jetting data;

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generating a drive signal including a plurality of drive pulses, on every unit print cycle;

translating the multi-bit jetting data into pulse select information associated with the respective drive pulses;

supplying selectively at least one of the drive pulses to the pressure generating element in accordance with the pulse select information to drive the pressure generating element,

wherein the print data is developed into the multi-bit jetting data such that each bit therein indicates whether the recording is conducted or not in each associated fine unit pixel, when the high-resolution mode is selected; and

wherein both of the recording on the basic unit pixel and the recording on the fine unit pixel are performed by a single movement of the recording head in the main scanning direction.

44. (new) The ink jet recording apparatus as set forth in claim 1, wherein a volume of every ink droplet ejected from the recording head is the same irrespective of the mode selected by the mode selector.

45. (new) The ink jet recording apparatus as set forth in claim 38, wherein a volume of every ink droplet ejected from the recording head is the same irrespective of the mode selected by the mode selector.

46 (new): The ink jet recording apparatus as set forth in claim 40, wherein a volume of every ink droplet ejected from the recording head is the same irrespective of the mode selected by the mode selector.